Looking at the stars

EOS 60Da

Canon

Looking at the stars

The EOS 60Da has been developed to meet the needs of the astro-photographer – delivering increased sensitivity to IR light, high image resolution and low levels of noise. Intuitive design features – such as a Vari-angle 7.7cm (3.0”) 3:2 Clear View screen – allows ease of operation when the camera is attached to a telescope or mounted on a tripod. The supplied EOS Utility software allows the EOS 60Da to be controlled from a PC or Mac computer.

Seeing in infrared

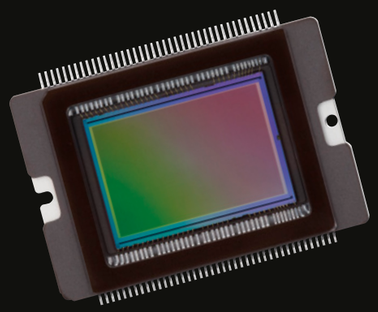
The EOS 60Da’s optical low-pass filter has been optimised to transmit more of the Hα light that is often the brightest visible light in stellar photography. This allows better reproduction of various phenomena, such as diffuse nebulae.

Compared with the conventional EOS 60D, three times more light at 656nm is transmitted through the optical low pass-filter of the EOS 60Da. That’s 1.5x more than previous astrophotography DSLRs, such as the EOS 20Da.

Shot with EOS 60Da

With the EOS 60Da, the infrared (IR) blocking filter is modified to allow more Hα light to pass through to the sensor, capturing more of the distinct reddish colour.

Shot with conventional EOS 60D



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The EOS advantage

Only Canon controls every aspect of CMOS sensor production, from concept and design through to manufacture and realisation. Each light-sensitive photodiode on a Canon CMOS sensor is fitted with its own individual micro lens and signal amplifier, providing extraordinary sensitivity in low-light. Such technology allows the EOS 60Da to shoot at a maximum sensitivity of ISO 6400 (expandable to ISO 12,800), meaning shorter exposure times and a faster workflow.

Working in tandem with the camera’s 18-megapixel CMOS sensor is a DIGIC 4 image processor. The DIGIC 4 chip controls every aspect of the camera’s image processing, including turning raw sensor data into JPEG or RAW image files.

14-bit electronic architecture provides exceptional colour depth and tonal range. The DIGIC 4 processor also helps to reduce digital noise in images recorded at high sensitivities or with long exposure times.

Designed for photographing astronomical phenomena, the Canon EOS 60Da delivers high-resolution images with increased infrared sensitivity and very low levels of noise.

Remote camera control and time-lapse shooting

Supplied with every EOS camera, EOS Utility software provides camera control – including remote live-view composition and tethered shooting – from a PC or Mac computer.

Simply connect your EOS 60Da using a USB cable and enjoy remote composition on your computer screen, camera triggering, image transfer and control over all of the camera’s major settings. Advanced shooting techniques are possible too, such as interval shooting for time-lapse photography.

Live view focusing

Focusing on a dimly lit sky using an optical viewfinder can be difficult, but the EOS 60Da’s live view mode makes sharp focus easy to find. Magnify any part of the scene by 5x or 10x to ensure critical sharpness is obtained.

A Vari-angle 7.7cm (3.0”) 3:2 Clear View screen pivots out 180° from the camera’s body and rotates through 270°, allowing a clear view no matter where the camera is positioned.

Compatibility with TC-80N3

Ensuring compatibility with your existing hardware, the EOS 60Da is supplied with a RA-E3 remote control adaptor which allows remotes with an N3 connector to be used. The TC-80N3 offers long exposure and interval shooting with a variable time delay of between 1 second and 23 hours 59 minutes and 59 seconds – perfect for those time-lapse projects.

Specifications: EOS 60Da

IMAGE SENSOR	
Type	22.3mm x 14.9mm CMOS
Effective Pixels	Approx. 18.00 megapixels
Total Pixels	Approx. 19.00 megapixels
Aspect Ratio	3:2
Low-Pass Filter	Built-in/Fixed with fluorine coating Infrared blocking filter optimised for Hydrogen-alpha (Hα) light (656 nm) transparency
Sensor Cleaning	EOS integrated cleaning system
Colour Filter Type	Primary Colour
IMAGE PROCESSOR	
Type	DIGIC 4
LENS	
Lens Mount	EF/EF-S
Focal Length	Equivalent to 1.6x the focal length of the lens
FOCUSING	
Type	TTL-CT-SIR with a CMOS sensor
AF System/ Points	9 cross-type AF points (f/2.8 at centre)
AF working range	EV -0.5 - 18 (at 23°C & ISO100)
AF Modes	AI Focus One Shot AI Servo
AF Point Selection	Automatic selection, Manual selection
Selected AF point display	Superimposed in viewfinder and indicated on top LCD panel and Quick Control screen
Predictive AF [7]	Yes, up to 8m
AF Lock	Locked when shutter button is pressed half way in One Shot AF mode or AF-ON button is pressed
AF Assist Beam	Intermittent firing of built-in flash or emitted by optional dedicated Speedlite
Manual Focus	Selected on lens, default in Live View Mode
EXPOSURE CONTROL	
Metering modes	TTL full aperture metering with 63 zone SPC (1) Evaluative metering (linked to all AF point) (2) Partial metering (approx. 6.5% of viewfinder at centre) (3) Spot metering (approx. 2.8% viewfinder at centre) (4) Centre weighted average metering
Metering Range	EV 0-20 (at 23°C with 50mm f/1.4 lens ISO100)
AE Lock	Auto: In One-shot AF mode with evaluative metering exposure is locked when focus is achieved Manual: By AE lock button in creative zone modes
Exposure Compensation	+/-5 EV in 1/3 or 1/2 stop increments (can be combined with AEB)
AEB	3 Shots +/-3 EV 1/3 or 1/2 stop increments
ISO Sensitivity [8]	Auto (100-3200), 100-6400 (in 1/3-stop or whole stop increments) ISO can be expanded to H: 12800
SHUTTER	
Type	Electronically-controlled focal-plane shutter
Speed	30-1/8000 sec (1/2 or 1/3 stop increments), Bulb (Total shutter speed range. Available range varies by shooting mode)
WHITE BALANCE	
Type	Auto white balance with the imaging sensor
Settings	AWB, Daylight, Shade, Cloudy, Tungsten, White Fluorescent light, Flash, Custom, Colour Temperature Setting White balance compensation: (1) Blue/Amber +/-9 (2) Magenta/ Green +/-9
Custom White Balance	Yes, 1 setting can be registered
WB Bracketing	+/-3 levels in single level increments 3 bracketed images per shutter release Selectable Blue/Amber bias or Magenta/ Green bias
VIEWFINDER	
Type	Pentaprism
Coverage (Vertical/ Horizontal)	Approx. 96%
Magnification	Approx. 0.95x [4]
Eyepoint	Approx. 22mm (from eyepiece lens centre)
Dioptre Correction	-3 to +1 m^{-1} (dioptre)
Focusing Screen	Interchangeable (3 types, optional). Standard Focusing Screen Precision Matte Ef-A
Mirror	Quick-return half mirror (Transmission: reflection ratio of 40:60, no mirror cut-off with EF600mm f/4 or shorter)
Viewfinder Information	AF information: AF points, focus confirmation light Exposure information: Shutter speed, aperture value, ISO speed (always displayed), AE lock, exposure level/compensation, spot metering circle, exposure warning, AEB Flash information: Flash ready, high-speed sync, FE lock, flash exposure compensation, red-eye reduction light Image information: White balance correction, Card information, monochrome shooting, maximum burst (2 digit display), Highlight tone priority (D+) Composition information: Electronic level (Horizontal only), Battery check
Depth of field preview	Yes, with Depth of Field preview button
Eyepiece shutter	On strap
LCD MONITOR	
Type	Vari angle 7.7cm (3.0") 3:2 Clear View TFT, approx. 1040K dots
Coverage	Approx. 100%
Viewing Angle (horizontally/vertically)	Approx 160°
Coating	Dual Anti-reflection
Brightness Adjustment	Adjustable to one of seven levels
Display Options	(1) Quick Control Screen (2) Camera settings (3) Electronic Level
FLASH	
Built-in Flash GN (ISO 100, meters)	13
Built-in Flash Coverage	up to 17mm focal length (35mm equivalent: 28mm)
Built-in Flash recycle time	Approx. 3 seconds
Modes	Auto, Manual flash, Integrated Speedlite Transmitter
Red-Eye Reduction	Yes
X-sync	1/250sec
Flash Exposure Compensation	+/- 3EV in 1/2 or 1/3 increments
Flash Exposure Bracketing	Yes, with compatible External Flash
Flash Exposure Lock	Yes
Second Curtain Synchronisation	Yes
HotShoe/ PC terminal	Yes / No
External Flash Compatibility	E-TTL II with EX series Speedlites, wireless multi-flash support
External Flash Control	via camera menu screen
SHOOTING	
Modes	Auto, No Flash, Creative Auto, Portrait, Landscape, Close-up, Sports, Night Portrait, Movie, Program AE , Shutter priority AE, Aperture priority AE, Manual, Custom
Picture Styles	Standard, Portrait, Landscape, Neutral, Faithful, Monochrome, User Defined (x3)
Colour Space	sRGB and Adobe RGB
Image Processing	Highlight Tone Priority Auto Lighting Optimizer (4 settings) Long exposure noise reduction High ISO speed noise reduction (4 settings) Auto Correction of Lens Peripheral illumination Basic+ (Shoot by ambience selection, Shoot by lighting or scene type) Creative filters (Grainy B/W, Soft focus, Toy camera, Miniature effect) - during image Playback only RAW image processing - during image Playback only Resize to M or S1, S2, S3
Drive modes	Single, Continuous L, Continuous H, Self timer (2s+remote, 10s +remote)
Continuous Shooting	Max. Approx. 5.3fps. (speed maintained for minimum of approx 58 images (JPEG) [1] [10], 16 images (RAW)) [2] [10]
LIVE VIEW MODE	
Type	Electronic viewfinder with image sensor
Coverage	Approx. 100% (horizontally and vertically)
Frame Rate	30 fps
Focusing	Manual Focus (Magnify the image 5x or 10x at any point on screen) Autofocus: Quick mode, Live mode, Live Face detection mode
Metering	Real-time evaluative metering with image sensor Active metering time can be changed
Display Options	Grid overlay (x2), Histogram, Multi aspect ratios
FILE TYPE	
Still Image Type	JPEG: Fine, Normal (Exif 2.21 [Exif Print] compliant) / Design rule for Camera File system (2.0), RAW: RAW, M-RAW, S-RAW (14bit, Canon original RAW 2nd edition), Digital Print Order Format [DPOF] Version 1.1 compliant
RAW+JPEG simultaneous recording	Yes, any combination of RAW + JPEG, M-RAW + JPEG, S-RAW + JPEG possible
Image Size	JPEG 3:2: (L) 5184x3456, (M) 3456x2304, (S1) 2592x1728, (S2) 1920x1280, (S3) 720x480 JPEG 4:3: (L) 4608x3456, (M) 3072x2304, (S1) 2304x1728, (S2) 1696x1280, (S3) 640x480 JPEG 16:9: (L) 5184x2912, (M) 3456x1944, (S1) 2592x1456, (S2) 1920x1080, (S3) 720x400 JPEG 1:1: (L) 3456x3456, (M) 2304x2304, (S1) 1728x1728, (S2) 1280x1280, (S3) 480x480 RAW: (RAW) 5184x3456, (M-RAW) 3888x2592, (S-RAW) 2592x1728
Movie Type	MOV (Video: H.264, Sound: Linear PCM, recording level can be manually adjusted by user)
Movie Size	1920 x 1080 (29.97, 25, 23.976 fps) 1280 x 720 (59.94, 50 fps) 640 x 480 (59.94, 50 fps)
Movie Length	Max duration 29min 59sec, Max file size 4GB
Folders	New folders can be manually created and selected
File Numbering	(1) Consecutive numbering (2) Auto reset (3) Manual reset
OTHER FEATURES	
Custom Functions	20 Custom Functions with 59 settings
Metadata Tag	User copyright information (can be set in camera) Image rating (0-5 stars)
LCD Panel / Illumination	Yes / Yes
Water/ Dust resistance	Yes [6]
Sound Memo	-
Intelligent Orientation Sensor	Yes
Playback zoom	1.5x - 10x
Display Formats	(1) Single image with information (2 levels) (2) Single image (3) 4 image index (4) 9 image index (5) Magnified view
Slide Show	Image selection: All images, by Date, by Folder, Movies, Stills, Rating Playback time: 1/2/3/5/10 or 20 seconds Repeat: On/Off
Histogram	Brightness: Yes RGB: Yes
Highlight Alert	Yes
Image Erase/Protection	Erase: Single image, All images in folder, Checkmarked images, unprotected images Protection: Erase protection of one image at a time
Menu Categories	(1) Shooting menu (x4) (2) Playback menu (x2) (3) Setup menu (x3) (4) Custom Functions menu (5) My Menu
Menu Languages	25 Languages English, German, French, Dutch, Danish, Portuguese, Finnish, Italian, Norwegian, Swedish, Spanish, Greek, Russian, Polish, Czech, Hungarian, Romanian, Ukrainian, Turkish, Arabic, Thai, Simplified Chinese, Traditional Chinese, Korean and Japanese
Firmware Update	Update possible by the user
INTERFACE	
Computer	Hi-Speed USB
Other	Video output (PAL/ NTSC) (integrated with USB terminal), HDMI mini output (HDMI-CEC compatible), External microphone (3.5mm Stereo mini jack)
DIRECT PRINT	
Canon Printers	Canon Compact Photo Printers and PIXMA Printers supporting PictBridge
PictBridge	Yes
STORAGE	
Type	SD card, SDHC card or SDXC card
SUPPORTED OPERATING SYSTEM	
PC & Macintosh	Windows XP (SP2/SP3) / Vista inc SP1 (excl. Starter Edition) / 7 (excl. Starter Edition) OS X v10.6-10.7
SOFTWARE	
Browsing & Printing	ImageBrowser EX
Image Processing	Digital Photo Professional
Other	PhotoStitch, EOS Utility (inc. Remote Capture), Picture Style Editor
POWER SOURCE	
Batteries	Rechargeable Li-ion Battery LP-E6 (supplied), built in for date & settings
Battery life	Approx. 1100 (at 23°C, AE 50%, FE 50%) [5] Approx. 1000 (at 0°C, AE 50%, FE 50%)
Battery Indicator	6 levels + percentage
Power saving	Power turns off after 1, 2, 4, 8, 15 or 30mins.
Power Supply & Battery Chargers	AC Adapter Kit ACK-E6, Battery charger LC-E6, Car Battery charger CBC-E6
PHYSICAL SPECIFICATIONS	
Body Materials	Aluminium and polycarbonate resin with glass fibre
Operating Environment	0 – 40 °C, 85% or less humidity
Dimensions (WxHxD)	144.5 x 105.8 x 78.6mm
Weight (body only)	Approx. 755g (CIPA testing standard, including battery and memory card)
ACCESSORIES	
Viewfinder	Eyecup Eb, E-series Dioptric Adjustment Lens Focusing Screens Ef (with Grid Ef-D, Super Precision Matte Ef-S), Angle Finder C
Case	Leather case EH21-L
Wireless File Transmitter	Compatible with Eye-Fi cards
Lenses	All EF and EF-S lenses
Flash	Canon Speedlites (220EX, 270EX, 270EX II, 320EX, 420EX, 430EX, 430EX II, 550EX, 580EX, 580EX II, 600EX, 600EX-RT, Macro-Ring-Lite, MR-14EX, Macro Twin Lite MT-24EX, Speedlite Transmitter ST-E2, Speedlite Transmitter ST-E3-RT)
Battery Grip	BG-E9
Remote Controller/ Switch	Remote Switch RS-60E3, Remote Controller RC-6/RC-1/RC-5 (Compatible with N3 type remote controls when used with supplied adapter RA-E3)
Other	Hand Strap E2

All data is based on Canon standard testing methods except where indicated. Subject to change without notice.

1. Large/Fine(Quality 8) resolution
2. Based on Canon's testing conditions, JPEG, ISO 100, Standard Picture Style varies depending on the subject, memory card brand and capacity, image recording quality, ISO speed, drive mode, Picture Style, Custom functions etc.
3. Compatible with large memory card capacities, including cards of 2GB and more (camera may require firmware update)
4. With 50mm lens at infinity, -1m^{-1} dpt
5. Based on the CIPA Standard and using the batteries and memory card format supplied with the camera, except where indicated
6. Memory card and battery door only
7. With EF300mm f/2.8L IS USM at 50kph
8. Recommended Exposure Index
9. Environmental protection
10. Maximum fps and buffer capacity may be reduced depending on the cameras settings and light level
11. Peripheral Cross type AF points will not function as a cross type AF points with the following lenses: EF 35-80mm f4-5.6 (II/III/USM), EF35-105mm f4.5-5.6 (USM). EF 80-200mm f4.5-5.6 (II)
12. With Battery strength 75% or higher

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English Edition 0160W962
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